



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,252	11/19/2001	Nikolaus Ingenhoven	01-1709	7762

20306 7590 06/30/2004

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER

LUDLOW, JAN M

ART UNIT	PAPER NUMBER
----------	--------------

1743

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/993,252

Applicant(s)

INGENHOVEN ET AL.

Examiner

Jan M. Ludlow

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-11, 21, 24 and 28 is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 12-20, 22, 23 and 25-27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/1.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 6/17/2004.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Art Unit: 1743

1. Claims 12-13, 17-18 are objected to because of the following informalities:
Typographical and antecedence errors are present. The appropriate corrections are shown in the proposed amendment below. Appropriate correction is required.
2. Claims 13, 15, 17, 19, 20, 23, 25, 27 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiply dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.
3. Claims 1-11, 21, 24, 28 are allowed.
4. Claims 12-20, 22-23, 25-27 would be allowable if rewritten to overcome the objections above.
5. The following claim amendments drafted by the examiner and considered to distinguish patentably over the art of record in this application, are presented to applicant for consideration:

In claim 12, line 1, change "line" to --lines--.

In claim 12, line 1, change "a" to --the--, both occurrences.

In claim 13, line 2, change "line" to --lines--.

In claim 13, line 1, change "claims 9, 10, 11 or 12" to --claim 9--.

In claim 16, line 3, change "a" to --the—before "first".

In claim 16, line 4, change "a" to --the—before "second".

In claim 17, line 1, insert --to—after "according".

In claim 17, line 1, change "9, 10 or 11" to --9--.

In claim 18, line 3, change "a" to --the—before "first".

Art Unit: 1743

In claim 18, line 4, change "a" to ~~the~~ before "second".

In claim 19, line 1, change "one of the Claims 16 or 18" to ~~claim 16~~.

In claim 23, line 1, change "13 or 14," to ~~13~~, --.

In claim 25, line 1, delete "10 or 11,".

In claim 27, line 1, change "Claims 13 or 14" to ~~claim 13~~,--.

Add the following claims:

29. A system according to claim 10 comprising n pumps, n lines, and n tips, the first drive and the second drive having m pulse generators, wherein n is a whole number selected from 8, 96, or 384 and m is a whole number selected from 1, 2, or 3.

30. A system according to claim 11 comprising n pumps, n lines, and n tips, the first drive and the second drive having m pulse generators, wherein n is a whole number selected from 8, 96, or 384 and m is a whole number selected from 1, 2, or 3.

31. A system according to claim 12 comprising n pumps, n lines, and n tips, the first drive and the second drive having m pulse generators, wherein n is a whole number selected from 8, 96, or 384 and m is a whole number selected from 1, 2, or 3.

32. A system according to claim 10, comprising an array of 96, 384, or more pumps, lines, and tips, arranged in parallel to one another, the first drive, comprising at least three spindles acting on a joint first plate, and the second drive, comprising at least three

pulse generators, each having a preloaded stack of piezoelectric elements, with the second drive additionally comprising a second plate that is connected to the first plate by the three pulse generators and that engage all three pistons simultaneously.

33. A system according to claim 11, comprising an array of 96, 384, or more pumps, lines, and tips, arranged in parallel to one another, the first drive, comprising at least three spindles acting on a joint first plate, and the second drive, comprising at least three pulse generators, each having a preloaded stack of piezoelectric elements, with the second drive additionally comprising a second plate that is connected to the first plate by the three pulse generators and that engage all three pistons simultaneously.

34. A system according to claim 18 comprising a channel system that discharges into each of the cylindrical chambers.

35. A system according to claim 14, wherein the tips are tip plates (16, 16') that can be removed or automatically picked up and discarded.

36. A system according to claim 10, further comprising a computer for controlling the aspiration and dispensing of liquid samples.

37. A system according to claim 11, further comprising a computer for controlling the aspiration and dispensing of liquid

samples.

38. A system according to claim 14, further comprising a computer for controlling the aspiration and dispensing of liquid samples.

39. A system according to Claim 29, comprising an array of pumps and tips arranged in parallel to one another, wherein the array corresponds in layout and format of a microplate having 96, 384, 864, 1536, or more wells.

40. A system according to Claim 30, comprising an array of pumps and tips arranged in parallel to one another, wherein the array corresponds in layout and format of a microplate having 96, 384, 864, 1536, or more wells.

41. A system according to Claim 31, comprising an array of pumps and tips arranged in parallel to one another, wherein the array corresponds in layout and format of a microplate having 96, 384, 864, 1536, or more wells.

42. A system according to Claim 32, comprising a channel system that discharges into each of the cylindrical chambers.

43. A system according to Claim 33, comprising a channel system that discharges into each of the cylindrical chambers.

44. A system according to claim 29, wherein the tips are tip plates (16, 16') that can be removed or automatically picked up

and discarded.

45. A system according to claim 30, wherein the tips are tip plates (16, 16') that can be removed or automatically picked up and discarded.

46. A system according to claim 31, wherein the tips are tip plates (16, 16') that can be removed or automatically picked up and discarded.

47. A system according to claim 29, further comprising a computer for controlling the aspiration and dispensing of liquid samples.

48. A system according to claim 30, further comprising a computer for controlling the aspiration and dispensing of liquid samples.

49. A system according to claim 31, further comprising a computer for controlling the aspiration and dispensing of liquid samples.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The most relevant references in the IDS differ from the instant invention as noted below:

Art Unit: 1743

DE 4318919 teaches a tip-rinsing device similar to that claimed, but fails to teach or suggest a pulse generator in the piston drive.

DE 19827293 teaches a pulse generator for a piston, but to the extent that the untranslated reference is understood, does not teach a first piston drive (i.e., other than the pulse generator), a rinsing channel, or aspiration function as in the preamble.

In WO 00/45955, Tisone, Sickinger, and Sisti, the pulse generator is not part of the piston drive and/or there is no first piston drive separate from the pulse generator.

JP 09327628 teaches a cylinder 20 with piston 4 driven by shaft 8 and piezoelectric device 22, but fails to teach or suggest a rinse channel discharging into cylinder 20. There is no motivation to combine with DE 4318919.

The examiner further adds:

Osawa teaches a first drive 3, piston 2, and piezoelectric piston drive 11, but fails to teach or suggest a rinse channel discharging into cylinder 1. There is no motivation to combine with DE 4318919. Further, based on the foreign priority of the instant application, Osawa would not constitute prior art upon the submission of certified translations of the priority documents.

7. The following is an examiner's statement of reasons for allowance: The prior art fails to teach or suggest the system as claimed. See the comments above with respect to how the claims differ from the prior art. Note that the instant channel for flushing or rinsing is interpreted in view of the specification as a separate structure from the tip or cylinder, so that the instant claims distinguish over a structure in which rinsing is

Art Unit: 1743

performed by aspirating rinse liquid into the tip or cylinder in the same manner as sample or reagent is aspirated.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. This application is in condition for allowance except for the following formal matters: See paragraphs 1 and 2.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

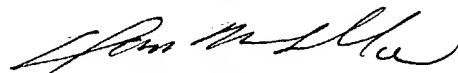
A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jan M. Ludlow whose telephone number is (571) 272-1260. The examiner can normally be reached on Monday-Thursday, 11:30 am - 8:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jan M. Ludlow



JAN LUDLOW
PRIMARY EXAMINER

6/25/04